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CUSTOMER NUMBER 25268

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Yarnykh et al. Attorney Docket No. UNIV0217  
Serial No.: 10/788,937 Group Art Unit: 3737  
Filed: February 27, 2004 Examiner:  
Title: MULTI-SLICE DOUBLE INVERSION-RECOVERY BLACK-BLOOD  
IMAGING WITH SIMULTANEOUS SLICE RE-INVERSION

INFORMATION DISCLOSURE STATEMENT

Bellevue, Washington 98004

August 12, 2004

TO THE COMMISSIONER FOR PATENTS:

Applicant is aware of the information listed in the attached form that may be material to the prosecution of the above-identified patent application.

- ☒ 1. Copies of the listed non-U.S. patent publications and other information are enclosed for the Examiner's use.
- ☐ 2. Copies of the listed patents, publications, and other information were previously cited by or submitted to the U.S. Patent and Trademark Office in prior application Serial No. \_\_\_\_\_, filed \_\_\_\_\_, and relied upon for an earlier filing date under 35 U.S.C. § 120.
- ☐ 3. A concise explanation of the relevance of document I.D. No. \_\_\_\_\_ (which is not in the English language), as presently understood by the individual designated under 37 C.F.R. § 1.56(c) most knowledgeable about its content, is provided \_\_\_\_\_.
- ☒ 4. Pursuant to 37 C.F.R. § 1.97(b), this information disclosure statement is being filed within three months of the filing date of the national application, within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, or before the mailing date of a first Office Action on the merits.
- ☐ 5. Pursuant to 37 C.F.R. § 1.97(c), this information disclosure statement is being filed after the period set forth in 37 C.F.R. § 1.97(b) but before the mailing date of either a final action under 37 C.F.R. § 1.113, or a notice of allowance under 37 C.F.R. § 1.311, and is accompanied by:
- a. \_\_\_\_\_ a certification as specified in 37 C.F.R. § 1.97(e); or
- b. \_\_\_\_\_ the fee set forth in 37 C.F.R. § 1.17(p). Check No. \_\_\_\_\_ in the amount of \$\_\_\_\_\_ is enclosed.

- 1 \_\_\_\_\_ 6. Pursuant to 37 C.F.R. § 1.97(d), this information disclosure statement is being filed  
2 after the mailing date of either:  
3 a. \_\_\_\_\_ a final action under 37 C.F.R. § 1.113; or  
4 b. \_\_\_\_\_ a notice of allowance under 37 C.F.R. § 1.311,  
5 but before payment of the issue fee. The statement is accompanied by a  
6 certification as specified in 37 C.F.R. § 1.97(e), a statement requesting  
7 consideration of the information disclosure statement, and the petition fee set  
8 forth in 37 C.F.R. § 1.17(p). Check No. \_\_\_\_\_ in the amount of  
\$ \_\_\_\_ is enclosed.
- 9 X 7. Please charge any additional fees or credit any overpayment to Deposit Account  
10 No. 01-1940. A copy of this sheet is enclosed.

11 Respectfully submitted,

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13 Ronald M. Anderson  
14 Registration No. 28,829  
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16 I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed  
17 envelope as first class mail with postage thereon fully prepaid addressed to: Commissioner for Patents, P.O.  
18 Box 1450, Alexandria, Virginia 22313-1450, on August 12, 2004.

19 Date: August 12, 2004

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**CUSTOMER NUMBER 25268**

**INFORMATION DISCLOSURE STATEMENT LISTING SHEET**

**Information Cited By Applicant(s) That May Be Material To  
The Prosecution Of The Subject Application**

Applicants: Yarnykh et al. Attorney Docket No. UNIV0217  
Serial No.: 10/788,937 Group Art Unit: 3737  
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Title: MULTI-SLICE DOUBLE INVERSION-RECOVERY BLACK-BLOOD  
IMAGING WITH SIMULTANEOUS SLICE RE-INVERSION

**U.S. PATENT DOCUMENTS**

*NONE CITED*

**FOREIGN PATENT DOCUMENTS**

*NONE CITED*

**OTHER INFORMATION**

<b>*Examiner Initial</b>	<b><u>Document No.</u></b>	<b><u>Document Information</u></b>
_____	O1	Bonk, Schmiedl, Yuan, Nelson, Black, and Ladd. "Time-of-Flight MR Angiography With Gd-DTPA Hexamethylene Diamine Co-Polymer Blood Pool Contrast Agent: Comparison of Enhanced MRA and Conventional Angiography for Arterial Stenosis Induced in Rabbits." <i>Journal of Magnetic Resonance Imaging</i> , 11:638-646 2000. © 2000 Wiley-Liss, Inc. pp. 638-646.
_____	O2	Cai, Hatsukami, Ferguson, Small, Polissar, and Yuan. "Classification of Human Carotid Atherosclerotic Lesions With In Vivo Multicontrast Magnetic Resonance Imaging." <i>Circulation, Journal of the American Heart Association</i> , September 10, 2002, pp. 1368-1373.
_____	O3	Chu, Kampschulte, Ferguson, Kerwin, Yarnykh, O'Brien, Polissar, Hatsukami, and Yuan. "Occurrence and Staging of Hemorrhage in the Advanced Carotid Atherosclerotic Plaque: An <i>In-Vivo</i> Multi Contrast High Resolution MRI Study." Submitted to <i>Stroke</i> , October 2003. 25pp.

## OTHER INFORMATION

<u>*Examiner Initial</u>	<u>Document No.</u>	<u>Document Information</u>
_____	O4	Han and Yuan. "Plaque Morphological Quantitation." <u>Angiography and Plaque Imaging, Advanced Segmentation Techniques</u> . Chapter 2. The Biomedical Engineering Series, Michael Neuman, Series Editor. CRC Press, Boca Raton, FL. pp. 43-76.
_____	O5	Han, Hatsukami, and Yuan. "A Multi-Scale Method for Automatic Correction of Intensity Non-Uniformity in MR Images." <i>Journal of Magnetic Resonance Imaging</i> , 13:428-436 (2001). (2) Wily-Liss, Inc.
_____	O6	Han, Hatsukami, Hwang, and Yuan. "A Fast Minimal Path Active Contour Model." <i>IEEE Transactions On Image Processing</i> , Vol. 10, No. 6, June 2001. pp. 865-873.
_____	O7	Han, Kerwin, Hatsukami, Hwang, and Yuan. "Detecting Objects in Image Sequences Using Rule-Based Control in an Active Contour Model." <i>IEEE Transaction on Biomedical Engineering</i> , Vol. 50, No. 6, June 2003. pp. 705-710.
_____	O8	Hatsukami, Ross, Polissar, and Yuan. "Visualization of Fibrous Cap Thickness and Rupture in Human Atherosclerotic Carotid Plaque In Vivo With High-Resolution Magnetic Resonance Imaging." <i>Circulation, Journal of the American Heart Association</i> . August 29, 2000. pp. 959-964.
_____	O9	Kaneko, Skinner, Raines, Yuan, Rosenfeld, Wight, and Ross. "Detection of dissection and remodeling of atherosclerotic lesions in rabbits after balloon angioplasty by magnetic-resonance imaging." <i>Coronary Artery Disease</i> , Diagnostic Methods, 2000, Vol. 11 No. 8.
_____	O10	Kang, Polissar, Han, Lin, and Yuan. "Analysis of the Measurement Precision of Arterial Lumen and Wall Areas Using High-Resolution MRI." <i>Magnetic Resonance in Medicine</i> , 44:968-972 (2000). pp. 968-972.
_____	O11	Kerwin and Yuan. "Analysis And Visualization Of Atherosclerotic Plaque Composition By MRI." <u>Angiography and Plaque Imaging, Advanced Segmentation Techniques</u> . The Biomedical Engineering Series, Michael Neuman, Series Editor. CRC Press, Boca Raton, FL. Chapter 3. pp. 77-117.
_____	O12	Kerwin, Cai, and Yuan. "Noise and Motion Correction in Dynamic Contrast-Enhanced MRI for Analysis for Atherosclerotic Lesions." <i>Magnetic Resonance in Medicine</i> , 47:1211-1217 (2002). pp 1211-1217.
_____	O13	Kerwin, Han, Chu, Xu, Luo, Hwang, Hatsukami, and Yuan. "A Quantitative Vascular Analysis System for Evaluation of Artherosclerotic Lesions by MRI." <i>Medical Image Computing and Computer-Assisted Intervention - MICCAI 2001</i> , 4 <sup>th</sup> International Conference Utrecht, The Netherlands, October 2001 Proceedings. Niessen and Viergever, eds. 9pp.

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<u>*Examiner Initial</u>	<u>Document No.</u>	<u>Document Information</u>
_____	O14	Kerwin, Hooker, Spilker, Vicini, Ferguson, Hatsukami, and Yuan. "Quantitative Magnetic Resonance Imaging Analysis of Neovasculture Volume in Carotid Atherosclerotic Plaque." <i>Circulation, Journal of the American Heart Association</i> , February 18, 2003. pp. 851-856.
_____	O15	Intentionally left blank
_____	O16	Miller and Yuan. "Atherosclerotic Plaque Imaging Techniques in Magnetic Resonance Images." <u>Angiography and Plaque Imaging, Advanced Segmentation Techniques</u> . The Biomedical Engineering Series, Michael Neuman, Series Editor. CRC Press, Boca Raton, FL. Chapter 7. pp.299-329.
_____	O17	Mitsumori, Hatsukami, Ferguson, Kerwin, Cai, and Yuan. "In Vivo Accuracy of Multisequence MR Imaging for Identifying Unstable Fibrous Caps in Advanced Human Carotid Plaques." <i>Journal of Magnetic Resonance Imaging</i> , 17:410-420 (2003). pp. 410-420.
_____	O18	Naghavi, Morteza et al. "From Vulnerable Plaque to Vulnerable Patient, A Call for New Definitions and Risk Assessment Strategies: Part I." <i>Circulation, Journal of the American Heart Association</i> , October 7, 2003. pp. 1664-1672.
_____	O19	Naghavi, Morteza et al. "From Vulnerable Plaque to Vulnerable Patient, A Call for New Definitions and Risk Assessment Strategies: Part II." <i>Circulation, Journal of the American Heart Association</i> , October 14, 2003. pp. 1772-1778.
_____	O20	Saam and Yuan. "Vascular Imaging." <i>Encyclopedia of Biomaterials and Biomedical engineering</i> . October 2003. 26pp.
_____	O21	Saam et al. " <i>In Vivo</i> Comparison of the Atherosclerotic Lesion Ipsilateral and Contralateral to the Side of Symptomatic Carotid Disease: A High-Resolution, Multi-Contrast Magnetic Resonance Imaging Study. Submitted to <i>Stroke</i> , October 2003. 25pp.
_____	O22	Saam, Cai JM, Cai YQ, Ma, Xu, Polissar, Hatsukami, and Yuan. "Differences in Carotid Artery Atherosclerotic Lesion Characteristics from the Index- and Non-Index Side of Symptomatic Patients: A High-Resolution, Multi Contrast Magnetic Resonance Imaging Study." Submitted to <i>Stroke</i> , October 2003. 19pp.
_____	O23	Schwartz, Hatsukami, and Yuan. "Molecular Markers, Fibrous Cap Rupture, and the Vulnerable Plaque, New Experimental Opportunities." <i>Circulation, Journal of the American Heart Association</i> , September 14, 2001. pp. 471-473.
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## OTHER INFORMATION

<u>*Examiner Initial</u>	<u>Document No.</u>	<u>Document Information</u>
_____	O25	Winn, Schmiedl, Reichenbach, Beach, Nghiem, Dimas, Daniel, Maravilla, and Yuan. "Detection and Characterization of Atherosclerotic Fibrous Caps with T2-Weighted MR." <i>AJNR Am J Neuroradiol</i> 19:129-134, January 1998. pp. 129-164.
_____	O26	Xu, Hwang, and Yuan. "Segmentation of Multi-Channel Image with Markov Random Field Based Active Contour Model." © Iuwer Academic Publishers, The Netherlands 2002. Accepted August 7, 2001. 11pp.
_____	O27	Yarnykh and Yuan. "High-Resolution Multi-Contrast MRI of the Carotid Artery Wall for Evaluation of Atherosclerotic Plaques." <i>Current Protocols in Magnetic Resonance Imaging</i> , Unit A1.4, Intracranial Arterial Disease. Supplement 11. 2003. 18pp.
_____	O28	Yarnykh and Yuan. "Multislice Double Inversion-Recovery Black-Blood Imaging With Simultaneous Slice Reinversion." <i>Journal of Magnetic Resonance Imaging</i> , 17:478-483 (2003). pp. 478-483.
_____	O29	Intentionally left blank
_____	O30	Yarnykh, Vasily L. "Pulsed Z-Spectroscopic Imaging of Cross-Relaxation Parameters in Tissues for Human MRI: Theory and Clinical Applications." <i>Magnetic Resonance in Medicine</i> , 47:929-939 (2002). pp. 929-939.
_____	O31	Yuan, Beach, Smith, and Hatsukami. "Measurement of Atherosclerotic Carotid Plaque Size in Vivo Using High Resolution Magnetic Resonance Imaging." <i>Circulation, Journal of the American Heart Association</i> . December 15, 1998. pp. 2666-2671.
_____	O32	Yuan, Hatsukami, and O'Brien. "High-Resolution Magnetic Resonance Imaging of Normal and Atherosclerotic Human Coronary Arteries Ex Vivo: Discrimination of Plaque Tissue Components." <i>MRI of Human Coronary Arteries</i> , Vol. 49, No. 6, November 2001. pp. 491-499.
_____	O33	Yuan, Kerwin, Ferguson, Polissar, Zhang, Cai, and Hatsukami. "Contrast-Enhanced High Resolution MRI for Atherosclerotic Carotid Artery Tissue Characterization." <i>Journal of Magnetic Resonance Imaging</i> , 15:62-67 (2002). pp. 62-67.
_____	O34	Yuan, Lin, Millard, and Hwang. "Closed Contour Edge Detection of Blood Vessel Lumen and Outer Wall Boundaries in Black-Blood MR Images." <i>Magnetic Resonance Imaging</i> , Vol. 17, No. 2, 1999. pp. 257-266.
_____	O35	Yuan, Miller, Cai, and Hatsukami. "Carotid atherosclerotic wall imaging by MRI." <i>Neuroimaging Clinics of North America</i> , 12 (2002). pp. 391-401.
_____	O36	Yuan, Mitsumori, Beach, and Maravilla. "Carotid Atherosclerotic Plaque: Noninvasive MR Characterization and Identification of Vulnerable Lesions." <i>Radiology</i> , Volume 221, No. 2, November 2001. pp. 285-299.

### OTHER INFORMATION

<u>*Examiner Initial</u>	<u>Document No.</u>	<u>Document Information</u>
_____	O37	Yuan, Mitsumori, Ferguson, Polissar, Echelard, Ortiz, Small, Davies, Kerwin, and Hatsukami. "In Vivo Accuracy of Multispectral Magnetic Resonance Imaging for Identifying Lipid-Rich Necrotic Cores and Intraplaque Hemorrhage in Advanced Human Carotid Plaques." <i>Circulation, Journal of the American Heart Association</i> , October 23, 2001. pp. 2051-2056
_____	O38	Yuan, Zhang, Polissar, Ehelard, Ortiz, Davis, Ellington, Ferguson, and Hatsukami. "Identification of Fibrous Cap Rupture With Magnetic Resonance Imaging Is Highly Associated With Recent Transient Ischemic Attack or Stroke." <i>Circulation, Journal of the American Heart Association</i> , January 16, 2002. pp. 181-185.
_____	O39	Yuan, Zhao, and Hatsukami. "Quantitative Evaluation of Carotid Atherosclerotic Plaques by Magnetic Resonance Imaging." <i>Current Atherosclerosis Reports</i> 2002, Vol. 4. © 2002 Current Science Inc. pp. 351-357.
_____	O40	Zhang, Cai, Luo, Han, Polissar, Hatsukami, and Yuan. "Measurement of Carotid Wall Volume and Maximum Area with Contrast-enhanced 3D MR Imaging: Initial Observations." <i>Radiology</i> , Volume 228, Number 1, July 2003. pp. 200-205.
_____	O41	Zhang, Hatsukami, Polissar, Han, and Yuan. "Comparison of carotid vessel wall area measurements using three difference contrast-weighted black blood MR imaging techniques." <i>Magnetic Resonance Imaging</i> , 19 (2001) pp. 795-802.
_____	O42	Zhao, Yuan, Hatsukami, Frechette, Kang, Maravilla, and Brown. "Effects of Prolonged Intensive Lipid-Lowering Therapy on the Characteristics of Carotid Artherosclerotic Plaques In Vivo by MRI, A Case-Control Study." <i>Arterioscler Thromb Vasc Biol.</i> October 2001. pp. 1623-1629.

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Examiner's Signature

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Date

\*Examiner: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

RMA:klp  
8/12/2004